



1928



BRISTOL
PORT SANITARY AUTHORITY

ANNUAL REPORT

OF THE
PORT MEDICAL OFFICER
OF HEALTH

BRISTOL :
THE W. B. HARRIS PRINTING COMPANY, LIMITED
NARROW WINE STREET

1928.



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R. A. ASKINS, M.A., M.D., D.P.H.
BARRISTER-AT-LAW.

BRISTOL:
The W. B. Harris Printing Company Ltd
Narrow Wine Street.

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**Port Medical Officer of Health*

R. A. ASKINS, M.A., M.D., D.P.H., Barrister-at-Law.

**Assistant Port Medical Officer of Health*

R. H. PARRY, M.B., B.S. Lond., D.P.H.

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Rat Catchers

*C. H. RYMAN	*C. SCORRER
*C. GILL	*E. R. POOLE

1. Certificated Sanitary Inspector.
2. Certificated Meat and Food Inspector.
- * Also engaged in the City.

INSPECTION OF ALIENS

Supervising Medical Inspector, R. A. ASKINS, M.D., D.P.H.

Medical Inspector, R. H. PARRY, M.B., B.S.

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BRISTOL PORT SANITARY AUTHORITY

ANNUAL REPORT, 1928

MY LORD MAYOR, LADIES AND GENTLEMEN,

I have the honour to present to you my first Annual Report as Port Medical Officer of Health. Although the present report covers a full year, I was not responsible for the carrying out of the duties of port medical officer of health until 1st April, 1928.

The duties imposed upon the Port Sanitary Authority consist in preventing the introduction of infectious disease, in the inspection of imported food, and the inspection and examination of aliens. At the same time, steps are taken to maintain the sanitary condition of crews' quarters on all vessels entering the port.

In regard to infectious diseases special precautions are taken with inward ships which have come from or have visited during their voyage any port where the diseases cholera, plague, yellow fever, typhus fever or smallpox, are known or suspected to have occurred during the last six months. In the case of plague it is necessary to guard against the introduction of rodent plague in rats, and this involves the adoption of measures to prevent the passage of rats from ships to the shore. On paper the results may not be very outstanding, as they are mostly negative, but the preventive work done at the port is of the first importance not only to the port and city but also to the whole country.

During the year under review, 976 ships arrived at the Bristol ports from "foreign" countries, and 6,034 from coastwise, making a total from "foreign" and coastwise of 7,280, or less by 329 than during 1927. Of these ships, 110 were from ports known to have been infected by plague. Your medical officers visited 119 ships altogether, and in nearly all these examined the crews. This compares with 41 ships visited during 1927. The port sanitary inspectors boarded 2,191 ships.

The number of cases of sickness landed from vessels arriving at the port was 104; in addition, 73 cases of infectious and other sickness were reported to have occurred on vessels during the voyage, but had been disposed of prior to arrival. Two cases of suspected bubonic plague were dealt with, but further investigation indicated that both cases were climatic buboes. An abnormal number of dead rats was found on board of one vessel, and it was treated as a "suspected" ship, but bacteriological examination of the dead rats failed to reveal the presence of rodent plague.

There was no case or suspected case of cholera, yellow fever, smallpox or typhus. An outbreak of chickenpox amongst the lascar crew of the s.s. *Buteshire* demonstrated their lack of resistance to that disease.

The medical inspectors of aliens inspected 449 aliens and subjected 45 of these to detailed examination. One certificate was issued that an alien in transit was a lunatic, and that it was undesirable that he should be permitted to land. The immigration officer arranged for him to proceed to Folkestone under escort for return to Spain.

By arrangement with the Docks and Sanitary Committees, the rat catchers (Docks Committee one, Sanitary Committee three) employed by them have been transferred to the Health Committee. The reorganised staff will work under the medical officer of health. A concerted attack can now be made on rats both in the city and port. From the economic point of view each rat is said to cost the country one pound per annum. From the medical point of view, rat repression is even more important, since the rat is a vehicle for the transmission to man of plague, and the cost of such a catastrophe as an epidemic of plague cannot be estimated.

Bristol has been recognised by the Ministry of Health for the purpose of issuing deratisation and deratisation exemption certificates (Article 27 of the International Sanitary Convention of 1926). Fifteen certificates (5 deratisation and 10 deratisation exemption) were issued during 1928. In addition, 18 other certificates (form Port 10) were issued, making in all a total of 33 certificates.

Before a deratisation exemption certificate can be issued the ship must be thoroughly examined for indications of the presence of rats and steps must be taken to diminish rat harbourage. On some ships this investigation may occupy an inspector as much as two days, and the new duties thus involve considerable additional work. In the case of deratisation, fumigation by burning sulphur is the method usually adopted. This is carried out by a private firm, but the entire process is supervised by the port sanitary inspectors.

I am, my Lord Mayor and Gentlemen,

Your obedient servant,

R. A. ASKINS, M.D.,

Port Medical Officer of Health.

PORT OF BRISTOL

The Port of Bristol consists of docks at Bristol, Avonmouth and Portishead, with a total water area of 176 acres, and a dock quayage of 30,690 feet. The Corporation of Bristol is the owner of the entire dock system. The storage capacity under the control of the port authority is about 250,000 tons, with a cold storage capacity of 750,000 cubic feet.

The chief imports are oil, tobacco, bananas and grain. Sixty-eight acres of the dock estate are occupied by oil installations, including 153 tanks with a total capacity of over 60 million gallons. Twenty-six per cent. of the tobacco imported into the United Kingdom enters Bristol, and the duty paid thereon every year amounts to about 25 million pounds. Over six million bunches of bananas enter the port annually, which is more than enters any other European port. Over 10 per cent. of the grain imported into this country comes through Bristol.

During 1928 the following vessels entered the docks :—

	<i>Number</i>				<i>Tonnage</i>	
Foreign	976	..	..	..	2,099,411	
Coastwise	6,034	..	..	..	1,104,893	
Total.. ..	7,280	..	..	..	3,204,304	

As a distributing centre Bristol serves a large area with a population of over two and a half millions within a fifty mile radius.

I.—Amount of Shipping entering the Port during the year 1928.

(AVONMOUTH, PORTISHEAD AND BRISTOL DOCKS)

Table A.

		Number	Tonnage	Number inspected		Number reported to be defective	Number of vessels on which defects were remedied
				By the medical officer of health	By the sanitary inspector		
Foreign	Steamers	*976	2,099,411	110	**1,069	136	135
	† Motor ..	—	—	7	** 55	—	—
	Sailing ..	—	—	—	** 3	—	—
	Fishing	—	—	—	—	—	—
Total Foreign		*976	2,099,411	117	**1,127	136	135
Coastwise	Steamers	4,752	949,355	2	717	55	55
	† Motor ..	—	—	—	114	12	12
	Sailing ..	1,552	155,538	—	223	9	9
	Fishing	—	—	—	—	—	—
Total Coastwise		6,034	1,104,893	2	1,004	76	76
Total foreign and coastwise		7,280	3,204,304	119	2,191	212	211

† Includes mechanically propelled vessels other than steamers.

* Excluding vessels from the Irish Free State.

** Including vessels from the Irish Free State.

II.—Character and Trade of Port.

(a) Passenger Traffic during 1928.

Table B.

No. of Passengers	1st Class	2nd Class	3rd Class	Trans-migrants
Inwards	3,382	—	105	—
Outwards	3,169	—	—	—

Countries from which passengers principally arrived :—

Kingston (Jamaica), Trinidad, Barbados, Port Limon, Santa Marta, and Cristobal.

A regular mail and passenger service between Avonmouth and the British West Indies and central America is run by Messrs. Elders and Fyffes. Elder and Dempster vessels occasionally call with passengers from the West African ports.

(b) *Cargo Traffic.*

PRINCIPAL IMPORTS

Commodities						Tons	
Grain	..	..	..	Quarters	..	3,910,682	806,316
Oilseeds	..	..	..	..	..	—	58,671
Oilcake	..	..	..	..	..	—	9,406
Flour and Meal	..	..	..	..	..	—	66,619
Fruit :							
Bananas	..	..	..	Bunches	..	6,308,990	108,014
Oranges and Lemons	..	..	..	Cases	..	383,945	19,679
Other Green Fruit	..	..	..	..	..	—	3,869
Canned	..	..	..	..	..	—	6,929
Dried	..	..	..	..	..	—	7,929
Metals and Ores :							
Brass	..	..	..	..	..	—	937
Copper	..	..	..	..	..	—	10,319
Iron	..	..	..	..	..	—	28,615
Lead	..	..	..	..	..	—	6,447
Spelter	..	..	..	..	..	—	8,892
Pyrites	..	..	..	..	..	—	4,879
Zinc Concentrates	..	..	..	..	..	—	64,435
Paper	..	..	..	..	..	—	50,361
Petroleum	..	..	..	..	..	—	397,565
Provisions :							
Bacon	..	..	..	..	..	—	1,321
Butter	..	..	..	..	..	—	1,794
Cheese	..	..	..	..	..	—	9,688
Lard	..	..	..	..	..	—	7,592
Frozen Meat	..	..	..	..	..	—	6,838
Sugar :							
Refined	..	..	..	..	..	—	14,931
Glucose	..	..	..	..	..	—	1,929
Molasses	..	..	..	..	..	—	5,468
Tobacco	..	..	..	..	..	—	25,855
Wine	..	..	..	Pipes	..	4,501	2,705
"	..	..	..	Dozens	..	3,788	95
Spirits	..	..	..	Puncheons	..	1,344	67
"	..	..	..	Dozens	..	47,623	953
Wood Goods	..	..	..	..	..	—	112,286
All other goods	..	..	..	..	..	—	187,729
Total Foreign Imports							2,039,133

PRINCIPAL EXPORTS

Commodities							Tons
Chemicals :							
Saltcake	..	..	..	..	..		11,693
Other kinds	..	..	..	..	..		2,910
Clay ..	..	..	..	..	..		17,062
Coke ..	..	..	..	..	..		17,245
Earths	..	..	..	..	..		2,753
Metals :							
Iron ..	..	..	..	..	..		76,731
Tinplates	..	..	..	..	..		12,991
Oil ..	..	..	..	..	..		1,017
Paper	..	..	..	..	..		2,739
Strontia	..	..	..	..	..		5,314
Zinc Concentrates	..	..	..	..	..		35,049
All other Goods	..	..	..	..	..		27,123
Total Foreign Exports							212,627

The Bristol ports carry on an extensive trade in grain with the River Plate. In addition there is a good and constant trade carried on as follows (imports) : cotton seed from Port Sudan, and Alexandria, barley and canned goods from America, meat and frozen produce from New Zealand and Australia, banana and grape fruit from West Indies, and grain and general produce from Canada.

Countries with which the Port principally trades.

FOREIGN COUNTRIES

Russia	France	Tunis	Mexico
Sweden	Portugal	Algeria	Honduras
Norway	Spain	Morocco	Costa Rica and
Finland	Italy	West Africa	Colombia
Belgium	Greece	Persia	Chili
Germany	Egypt	U.S.A.	Argentine
Netherlands	Rumania	Haiti	Republic

BRITISH POSSESSIONS

Cyprus	Straits Settlements
British West Africa	Australia
British South Africa	New Zealand
Iraq	Canada
British India	British West Indies

List of ports abroad from which ships have arrived.

	1928
Africa (North, 23 ; South, 2 ; East, 2 ; West, 9)	36
Alexandria and Cyprus	12
Australia and New Zealand	38
Black Sea	13
Bombay, Calcutta, Rangoon and Karachi	21
Canada	70
Channel Islands	33
China and the Far East	2
Curacao (Dutch West Indies)	12
East Indies	1
France	106
Germany	78
Greece	3
Holland and Belgium	84
Irish Free State	151
Italy	8
Jamaica and Santa Marta	66
New Orleans and Gulf of Mexico	61
Newport News and Norfolk, Va.	10
New York and Portland, Maine	44
Norway, Sweden and Denmark	65
Persian Gulf	23
Peru and Chili	1
Philadelphia and Baltimore	21
River Plate	45
Rumania	2
Russia and Finland	29
San Francisco and Portland, Or.	20
Spain and Portugal	53
Teneriffe	3
Trinidad and Barbadoes	10
Turkey in Asia	6
Total	1,127

III.—Source of Water Supply.

(a) *For the Port.*

(b) *For shipping.*

The water used in the port and by ships in the docks is supplied by the Bristol Water Works Company.

(c) *No. of water boats and their sanitary condition.*

There are no water boats in use at Avonmouth or Portishead, as hydrants are provided on the quayside.

One water boat is in use at Bristol docks, and this vessel is inspected periodically by the port sanitary inspector, and is cleansed and cement washed when necessary.

IV.—Infectious Disease.

(1) *Arrangements for detection of infectious disease on inward vessels :*

The port medical officer of health is notified of cases of sickness on an inward vessel from the sources detailed below. If there is any reason to suspect that the case is of a dangerous infectious nature, the ship is visited by the port medical officer of health or his assistant. In other cases of sickness, if a doctor is not attached to the ship, the owners or agents are requested to obtain the services of a local medical practitioner, who at once notifies the port medical officer of health if he has suspicion that the case may be infectious.

All vessels from ports which are considered to be dangerous in regard to plague, cholera, yellow fever, typhus or smallpox, are boarded by the medical officer. These ports are known from the international list, and any port where above diseases have occurred within the last six months is regarded with suspicion.

(2) *Arrangements for notification to the Port Sanitary Authority of the arrival of inward vessels requiring special attention are as follows :*

- (a) Local ship owners and agents notify the port medical officer of health of expected arrivals.
- (b) Masters of locally owned vessels send wireless news of their expected arrival with information regarding the number of passengers and aliens on board and cases of sickness (if any).
- (c) Information from Walton Bay signalling station before the ship has reached port.

Pilotage is compulsory to the three ports under the Bristol Port Authority, except for coastwise trading vessels not carrying passengers. Every pilot is supplied with a list of infected ports. Arrangements have been made whereby the pilots signal to the signalling station at Walton Bay information given to them relative to sickness and this information is transmitted to the port medical officer of health. A sum of £15 per annum is paid to the Walton Bay signal station as a retaining fee for such services.

- (d) H.M. Customs Officers, who are also supplied with the list mentioned above, board all inward vessels usually at the lock entrances. The officers render every possible assistance to the Port Sanitary Authority in this matter.
- (e) A port sanitary inspector visits every ship immediately on arrival from a foreign port. The master or surgeon of every vessel arriving from a foreign port is required to fill in a form giving general information as to the health of the crew during the voyage and particulars of any sickness that has occurred.
- (f) Wireless messages. Apart from messages received from vessels by the local owners and thence transferred to the port sanitary officer no arrangements exist for receiving direct wireless messages from ships.

(3) *What vessels are boarded on arrival, by whom, where, and how.*

All vessels arriving in Bristol, Avonmouth, or Portishead from foreign parts are boarded by the port sanitary inspectors at the lock entrances or in the docks. They immediately notify the port medical officer of health of cases of infectious sickness that may be present on board or have occurred during the voyage, and of any serious infestation with rats or of the presence of dead rats. The port medical officer of health or his assistant visits such ships as soon as possible. In addition every ship from ports considered to be dangerous is visited by the port medical officer of health or his assistant, and all the crew is inspected, and if necessary examined.

(4) *Arrangements for disposal of cases of infectious disease and for observation or surveillance of contacts :*

Patients and observation cases are removed to Ham Green Isolation Hospital, or, if smallpox to Novers Hill Hospital, by means of the Health Committee's motor ambulances. Contacts of infectious cases if not removed to hospital are kept under observation by the port sanitary inspectors, and in the event of their proceeding to an address outside the city, the medical officer of health of the district concerned is advised.

(5) *Arrangements for disinfection of infected quarters, bedding, clothing, etc.*

Infected quarters are fumigated as soon as possible by means of sulphur, and by spraying with disinfectant ; and the bedding clothing, etc., is removed by means of motor vans to the disinfecting station, Bristol, and there disinfected by steam.

(6) *Arrangements for cleansing of persons :*

This is carried out at the bathing centre at the Bristol disinfecting station to which patients can be conveyed by the Committee's motor ambulance.

(7) *Arrangements for ambulance transport :*

The motor ambulances belonging to the Bristol Health Committee are used for this purpose.

(8) *Arrangements for detection and treatment of venereal disease amongst sailors, are as follows :*

(a) Careful enquiry is made by the port sanitary inspectors of the responsible officers on the ship for the history of cases that may have reported during the voyage.

(b) Examination of the crews of ships has resulted in the detection of a number of venereal cases not previously reported by the masters.

Leaflets stating the times of attendance at the Health Committee's venereal disease clinic are given to the masters of vessels, and treatment at this institution can be obtained free of cost to the patients. During 1928 thirty-five cases of venereal disease came under the notice of the port medical officer of health and in all instances the master of the vessel was advised to arrange for the attendance of the patient at the clinic.

The following seamen were treated at the clinic during the year :

77 cases of syphilis.
1 case of soft sore.
80 cases of gonorrhoea.
3 inguinal bubo.
22 cases found not to be venereal disease.

183

One hundred and seventy-eight seamen were examined at the clinic. Five were found to have both syphilis and gonorrhoea, and are included under both diseases.

(9) and (10) *Arrangements for bacteriological examination (a) of rats and (b) others.*

Arrangements have been made with the pathological department of the Bristol University for the systematic examination of rats, and for any special examinations which may be required.

During the year under review 129 rats were examined for plague, 42 being from the ships at the ports and 87 from the sheds and quays at the docks. The number of rats examined will be increased during the present year.

Cases of infectious sickness landed from vessels.

Table C

Disease	No. of cases during 1928	Average no. of cases for previous 5 years
<i>Infectious diseases, including:</i>		
Enteric fever	—	2.6
Typhus fever	—	.2
Malaria	7	6.0
Smallpox	—	.2
Measles	—	.6
Scarlet fever	—	.4
Diphtheria	—	.2
Influenza	1	3.2
Mumps	—	.6
Dysentery	—	.4
Erysipelas	—	.2
Chickenpox	6	.2
Pulmonary tuberculosis	3	3.0
Other forms of tuberculosis ..	2	.6
Venereal diseases	35	11.4
Climatic bubo	2	—
Totals	56	29.8

Other diseases not included in Table C above landed from vessels.

Disease	No. of cases during 1928	Average no. of cases for previous 5 years
Cancer	—	.2
Tumour	1	—
Rheumatism	1	.2
Beri-beri	1	.8
Diseases of Nervous system ..	6	1.6
" " Circulatory system ..	2	1.0
" " Respiratory system ..	7	6.2
" " Digestive system ..	8	6.2
" " Genito urinary system ..	4	1.4
" " Skin & cellular tissue ..	7	1.0
" " Bones & organs of locomotion	—	.4
" " Congenital malformations, etc.	—	.2
Traumatism	6	6.0
Ill-defined diseases	5	1.6
Totals	48	26.8

**Cases of infectious sickness on vessels during voyage but disposed
prior to arrival.**

Table D

Disease	No. of cases during 1928	Average no. of cases for previous 5 years
<i>Infectious diseases, including :</i>		
Enteric fever	2	1.2
Malaria	26	3.4
Smallpox	1	.8
Measles	—	.2
Whooping cough	—	.2
Influenza	4	.8
Mumps	1	—
Cholera	—	.4
Dysentery	—	2.2
Plague	—	.4
Poliomyelitis	1	—
Chickenpox	—	.2
Dengue fever	2	—
Tetanus	—	.2
Pulmonary tuberculosis	2	.8
Venereal disease	5	2.8
Totals	44	13.6

*Other diseases not included in Table D above on vessels during voyage
but disposed of prior to arrival.*

Disease	No. of cases during 1928	Average no. of cases for previous 5 years
Abdominal tumour	1	—
Rheumatism	—	.8
Beri-beri	1	.6
Enlarged spleen	1	—
Diseases of Nervous system	3	1.2
" " Circulatory system	5	1.0
" " Respiratory system	2	2.2
" " Digestive system	9	3.4
" " Genito-urinary system... .. .	2	.4
" " Skin and cellular tissue	—	.8
" " Bones and organs of loco- motion	—	.4
Traumatism	4	3.6
Ill-defined diseases	1	3.4
Totals	29	17.8

The following interesting cases came under the notice of the port medical officer during 1928 :—

- s.s. *Urbino* from Basra arrived at Avonmouth, April 15th, with a cargo of grain. The crew was examined by the port medical officer of health and a lascar fireman was found to be suffering from a large fluctuating left inguinal bubo. He had suffered from some malaise for the previous ten days, but was able to walk about and to do light work. His temperature was 100° F. No external indications of venereal disease could be found ; a gland in the left axilla was slightly enlarged but not painful. The patient was removed to Ham Green Isolation Hospital, and full rat precautions and systematic search for rats carried out on the ship. A specimen of pus from the bubo was examined by Professor Walker Hall at the University Laboratory by film, cultural and inoculation methods. He reported negative results as regards plague, but was able to demonstrate the presence of gonococci in the pus by culture and films. A female *mus rattus* was caught on the ship, killed and examined with a negative result.

- s.s. *Egba* arrived at Avonmouth, April 26th, from Sierra Leone and Dakar. On board was a male patient, aged 30, suffering from sleeping sickness ; he had a medical report stating that *Trypanosomes* had been found in his blood. The man looked very ill and was proceeding to the London School of Tropical Medicine for treatment.

- s.s. *Camito* from West Indies arrived Avonmouth, July 9th, One lascar D.B.S. had been treated at Barbados for bubonic plague from May 22nd to June 27th. He appeared to have recovered completely.

- s.s. *Pentraeth* from Rodosto and Alexandria arrived at the Bristol city dock on 21st September. When the crew was examined the donkeyman, a lascar, was found with a suppurating left inguinal bubo and enlarged right inguinal glands. There were no constitutional disturbances, the man was working and the captain knew nothing about the condition. The patient was admitted to the isolation hospital and rat precautions were taken. No rats were caught by traps or baits and the report of Professor Walker Hall on a specimen of pus from the bubo was negative.

- s.s. *Buteshire* from Australia *via* London and Liverpool arrived at Avonmouth by the evening tide on August 30th. The captain reported that there was no sickness on board. A native crew of 72 had joined the ship at Liverpool from the s.s. *Clan MacVicar*. On the morning of the 31st August the port sanitary inspector made a second visit to the ship and obtained information about a sick native with " a rash." As the

result the port medical officer of health visited the ship and examined the native crew and five severe cases of chickenpox were removed to hospital. Another case was removed to hospital on the following day (September 1st).

V.—Measures against Rodents.

(1) Steps taken for detection of rodent plague.

A new scheme has been approved for the re-organisation of the staff to deal with rodents in the city and docks. In future a staff of rat catchers will be employed under the control of the medical officer of health (who is also port medical officer of health) and their work at the ports will be supervised by the port sanitary inspectors. By this arrangement it will be possible to obtain, for bacteriological examination, samples of rats from the quays and warehouses on the docks as well as from inward vessels, special attention being paid to ships arriving from infected ports.

Enquiries are made of the masters of vessels either by the port sanitary inspectors or by the medical officers regarding the prevalence of rats on the ships and especially regarding the presence of dead rats. In ships from infected ports the last certificate of fumigation is produced for the inspection of the medical officer. During the discharge of cargo frequent visits are paid to ships by the port sanitary inspectors who enquire of the stevedores regarding the presence of rats, and the officers themselves search for rat indications.

Tables E and F show the work done in this connection at the ports during 1928.

(2) Measures taken to prevent the passage of rats between ships and the shore.

The following precautions are taken on ships from plague-infected ports:—

Where rat guards are carried by the vessel, these are applied to stop the passage of rats from the ship to the shore. Rat guards of a special pattern can be hired for a nominal fee from the Port Sanitary Authority. Owing to the inefficiency of rat guards generally the following additional precautions are taken. The mooring ropes are covered with tar which is kept moist, and freshly applied night and morning; the same treatment is applied to the wire hawsers, and also to the manilla ropes by means of a piece of hessian cloth tied thereon. Gangways are kept raised whenever possible, or alternatively are well lighted during the night, and the sides and undersides kept moist by means of tar. Where there is evidence of the existence of an excessive number of rats on board, or in the case of suspected ships, the additional precaution is taken of booming the ships off the quayside by means of rafts, when the cargo is not being worked.

An example of extensive infestation of a ship with rats was seen in the following instance. On the 30th August the s.s. *Promus* arrived at Avonmouth from the River Plate and was boarded by the medical officer; the crew of 34 hands was medically inspected and found all well. The last date of fumigation was not known to the master. A preliminary investigation by the port sanitary inspector revealed rat indications in the holds, where the cargo was bags of flour and maize in bulk. The vessel proceeded to discharge cargo and it became apparent that it was infested with rats. A few rats were killed on the first day and forwarded for bacteriological examination at the University. The result was negative for plague. Orders were given for the vessel to be boomed off the quay when work was finished for the day. The vessel completed the discharge in a week and it was agreed that it should be fumigated. This was done with sulphur by burning and as usual under the supervision of the port sanitary inspector with the result that the following numbers of dead rats were collected:

From fore-peak and chain locker	..	..	7
From No. 1 hold	..	..	1
From No. 1 and 2 tween decks	..	..	44
From No. 2 hold	..	..	53
From bunker hold (13 in bilges)	..	..	24
From bunker tween decks	..	..	16
From No. 3 hold (4 decomposed)	..	..	20
From No. 3 tween decks	..	..	25
From No. 4 hold	..	..	24
Total			214

On December 1st, 1928, the s.s. *Galvan* with 35 crew and two passengers arrived at Avonmouth from the River Plate. The ship was visited by the medical officer and the crew inspected; no history of sickness was obtained and none was found. The cargo consisted of maize and wheat in bulk, bags of pollards and feeding cake. The ship was visited later by the port sanitary inspector who discovered dead rats on top of the bulk maize in No. 1 hold. Dead rats were also seen on the bags and grain in the other three holds. At the time it was noticed that the cargo was heated, a strong "stuffy" odour emanated from the holds and the rats themselves were green and blown out. Specimens of the dead rats were obtained and sent to the bacteriologist for immediate report. Rat precautions were also taken, the ship being boomed off the quay with a raft. Bacteriological examination of the rats revealed no plague bacilli, the cause of their death probably being suffocation.

(3) *Methods of deratisation of:*

(a) *Ships.*

Trapping, fumigating with sulphur, and occasionally with hydrocyanic acid. Fumigation is usually carried out by a private firm under the supervision of the port sanitary inspector. The method adopted is with sulphur by burning, 3-lbs. of sulphur being allowed for each 1,000 c. ft. of space and the exposure lasting for eight hours. To ensure complete combustion of the sulphur,

flattened trays have been specially made and these stand in larger trays containing water. Cotton waste well soaked in wood alcohol reaches through the sulphur to the bottom of the tray. This method has been found to give very good results.

As mentioned, the Bristol Port Authority is recognised by the Ministry of Health for the purposes of issuing deratisation and deratisation exemption certificates in accordance with the decision of the International Sanitary Conference. Fifteen deratisation and deratisation exemption certificates were issued from July to 31st December, 1928. In every instance of deratisation fumigation was the method adopted.

(b) Premises in the vicinity of the docks and quays.

Trapping and laying down of poisoned baits.

(4) Measures taken for the detection of rat prevalence in ships, and on shore.

The port sanitary inspectors board all inward vessels and examine them for rat indications with a view to forming an estimate of rat prevalence. These officers also inspect the warehouses and quays regularly. Under the new arrangements there will be a staff of rat catchers working under the supervision of the inspectors, which will allow the measures against rats to be further strengthened.

(5) Rat proofing.

(a) To what extent are docks, wharves, warehouses, etc., rat proof?

In the Royal Edward Dock, Avonmouth, a number of the sheds and granaries are of recent construction, and as they are built of re-inforced concrete and the floors concreted, the buildings are practically rat-proof. There are several sheds in the docks where the wood flooring has not been replaced by concrete, and these offer considerable harbourage for rats. Progress in the diminution of rat harbourage is continuous although slow. In Bristol docks and in the older portions of Avonmouth docks for some years the Docks Committee have been reconstructing or re-erecting all their sheds with re-inforced concrete, and substituting concrete flooring in place of boarded floors. They are also concreting the quay spaces outside the sheds.

(b) Action taken to extend rat proofing:

*(i) On ships:—*The provision where possible of metal containers and barrels for storage of flour, etc.

When vessels are inspected suggestions are made to the chief officer or stewards to utilise metal containers in the storerooms wherever possible and to remove at frequent intervals any loose gear that can harbour rats.

*(ii) On shore:—*Substitution of concrete floors, etc. (See 5a).

RATS DESTROYED DURING 1928

Table E. (1) *On Vessels.*

Number of	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total in Year
Rats	2	5	50	25	—	—	7	60	348	12	34	63	606
Rats examined	—	—	3	5	—	—	—	6	7	11	5	5	42
Rats infected by plague	—	—	—	—	—	—	—	—	—	—	—	—	—

Table F. (2) *In docks, quays, wharves and warehouses.*

Number of rats—Avonmouth..	746	485	841	557	881	665	686	780	586	809	744	619	8,399
Bristol ..	52	54	62	50	54	62	20	19	31	26	142	52	624
Portishead ..	13	25	13	11	13	11	15	13	9	13	14	10	160
	811	564	916	618	948	738	721	812	626	848	900	681	9,183
Rats examined	14	8	14	—	7	11	8	—	2	9	12	2	87
Rats infected with plague ..	—	—	—	—	—	—	—	—	—	—	—	—	—

Number of poison baits laid in docks—106,440

Table G

Particulars relating to plague "infected" or "suspected" vessels arriving in the port during 1928.
No plague "infected" or "suspected" vessels arrived in the port during 1928.

Table H

Measures of rat destruction on vessels from plague infected ports (other than those included in Table G) arriving in the port during 1928, and number of certificates issued in respect of such vessels.

Total no. of vessels arriving from plague infected ports	No. of such vessels fumigated with SO ₂	No. of dead rats recovered	No. of such vessels fumigated with HCN	No. of dead rats recovered	No. of such vessels on which trapping, poisoning, etc. were employed	No. of dead rats recovered	No. of such vessels on which measures of rat destruction were not carried out	No. of fumigation certificates issued on form "Port 11"		No. of other certificates issued
								Deratization	Exemption	
1	2	3	4	5	6	7	8	9	10	11
*110	1	**318	—	—	4	33	†105	—	—	Form "Port 10" 1

*90 vessels arrived once during the year
6 " " twice during the year
1 vessel " three times during year
1 " " five times during year
(One vessel was also inspected in Walton Bay on behalf of the Gloucester Port Sanitary Authority).

** 16 rats were found dead in this vessel, 88 were killed by workmen, and 214 were collected after fumigation.
† In three of these vessels 105 rats were found dead or were killed by workmen.

Most of these vessels discharged only part cargo at Bristol docks.

Table I
Measures of rat destruction on vessels (other than those included in Tables G and H) and number of certificates issued in respect of such vessels during 1928.

Vessels fumigated by SO ₂	No. of dead rats recovered	Vessels fumigated by HCN	No. of dead rats recovered	Vessels on which trappings, poisoning etc. were employed	No. of dead rats recovered	Certificates issued on form "Port 11"		Other certificates issued
						Deratization	Exemption	
1	2	3	4	5	6	7	8	9
s.s. "Ariguani"	—			s.s. "Argual"	1	s.s. "Canito"	s.s. "Anglo Canadian"	Form "Port 10"
"Ariguani"	—			"City of Candia"	9	"Carare"	"Argual"	s.s. "Ariguani"
"Boston City"	—			"Commanchee"	24	"Manchester Civilian"	m.v. "Binta"	"Ariguani"
"Boston City"	—			"Motagua"	29	"New York City"	s.s. "British Lady"	"Boston City"
"Bristol City"	—			"Thetis"	1	"Nubian"	"Oratava"	"Boston City"
"Bristol City"	—						"Papanui"	"Bristol City"
"Canito"	14						"San Leonardo"	"Bristol City"
"Carare"	2						"San Macedonia"	"Carare"
"Carare"	—						"Scottish Heather"	"Carare"
"Cavina"	1						"Telde"	"Cavina"
"Cavina"	—							"Cavina"
"Chicago City"	—							"Chicago City"
"Chicago City"	—							"Chicago City"
"Concordia"	29							"Concordia"
"Exeter City"	5							"Exeter City"
"Exeter City"	—							"Exeter City"
"Manchester Civilian"	12							"New York City"
"New York City"	—							"New York City"
"New York City"	—							"New York City"
"New York City"	—							"New York City"
"Nubian"	11							"New York City"
"Pakipaki"	—							"Pakipaki"
Totals (Fumigations)	23	—	—	(Vessels) 5	64	(Certificates) 5	(Certificates) 10	(Certificates) 18

VI. Hygiene of Crews' spaces.

Table J--Classification of Nuisances.

Nationality of vessel	Number inspected during 1928	Defects of original construction	Structural defects through wear and tear	Dirt, vermin and other conditions prejudicial to health
British	1,846	8	23	263
Other Nations ..	345	2	4	49
Totals	2,191	10	27	312

VII.—Food Inspection

(Report by Mr. J. A. Robinson, Chief Port Sanitary Inspector)

(1) (a) Public Health (Imported Food) Regulations, 1925.

The total quantity of food imported during the year has been well up to the average. Every consignment has received very careful inspection during the time of discharge and afterwards in the dock sheds and warehouses. Food invariably arrives in this port in good condition, and detention measures or statutory proceedings have not been necessary during the year.

The quantities imported and dealt with include the following :

Fresh, frozen or canned meat, &c.

Frozen beef	15,852 qrs.
„ mutton and lamb	291,459 carcasses.
„ pork	14,446 carcasses.
„ offal	100 packages
Cured or salted beef and pork	1,952 tons.
Bacon and hams	1,321 tons.
Canned meat	632 tons.
Canned fish	931 tons.

Fresh, dried and canned fruit, &c.

Bananas (6,308,990 bunches)	108,014 tons.
Green fruit	23,548 tons.
Dried fruit	7,929 tons.
Vegetables	17,029 tons.
Vegetables in brine	201 tons.
Canned fruit and fruit pulp	6,929 tons.

Other foods.

Butter, cheese and lard	19,074 tons.
Grain	806,316 tons.
Flour and meal	66,619 tons.

AMOUNT OF UNSOUND FOOD DESTROYED OR OTHERWISE DEALT WITH SO AS NOT TO BE USED FOR HUMAN FOOD.

<i>Fresh or frozen meat, &c.</i>	<i>tons</i>	<i>cwts.</i>	<i>qrs.</i>	<i>lbs.</i>
Mutton		2	3	26
Lamb			2	16
Pork				4
Bacon—one side			1	22

Canned goods.

Fruit 7,018 tins	7	6	—	23½
Lunch tongues 37 tins		1	3	26
Hams 15 tins		2	1	3
Milk 3 tins				3
Salmon 2 tins				2
Brawn 2 tins				12
Beef 1 tin				6
Pilchards 1 tin				1
Peas 1 tin				2½

<i>Fruits and vegetables.</i>			<i>tons</i>	<i>cwts.</i>	<i>qrs.</i>	<i>lbs.</i>
Oranges ..	1,634 cases..		81	14	—	—
Lemons ..	11 cases..		—	11	—	—
Grape fruit ..	289 cases..		14	9	—	—
Dried apricots ..	1 box ..		—	—	—	25
Sultanas ..	283 boxes		7	1	2	—
Raisins ..	95 boxes		2	7	2	—
Currants ..	4 boxes		—	2	—	—
Onions ..	90 cases..		4	10	—	—
<i>Other foods.</i>						
Wheat ..	1,896 bushels		47	8	—	—
Barley ..	526 bushels		13	3	—	—
Maize ..	330 bushels		8	5	—	—
Flour ..	5 bags ..		—	6	1	—
Rice ..	51 bags ..		2	15	—	6
Quaker oats ..	35 cases..		—	13	—	14
Post Toasties ..	9 cases..		—	1	1	22
Force ..	18 packets		—	—	—	11½
Beans ..	1 bag ..		—	1	—	—
Lard ..	2 boxes		—	1	—	—
Desiccated cocoanut	4 cases..		—	4	2	16
Total ..			191	8	2	17

(b) *Public Health (Imported Milk) Regulations, 1926.*

No action was taken under these regulations as no milk, skimmed milk or separated milk was imported during the year.

(c) *Public Health (Preservatives, &c. in Food) Regulations, 1925.*

The following specimens were submitted to the city analyst for analysis under these regulations:—

Apple pulp ..	..	..	..	2
Apricot pulp ..	..	..	..	2
Blackcurrant in syrup	...	...	...	28
Redcurrant in syrup	..	..	..	4
Cherries in syrup ..	..	..	..	4
Gooseberry in syrup	..	..	..	6
Plum in syrup ..	..	..	..	7
Raspberry in syrup	..	..	..	7
Strawberry in syrup	..	..	..	32
Canned peas..	..	..	..	2
„ prawns	..	..	..	1
„ tomatoes	..	..	..	1
Dried apricots	..	..	..	29
„ fruit salad	..	..	..	8
„ pears ..	..	..	..	14
„ peaches	..	..	..	5
Evaporated apples ..	..	..	..	9
Butter ..	..	..	..	1
Pearl barley	..	..	..	4
Desiccated cherries	..	..	..	1
Raisins ..	..	..	..	34
Sultanas ..	..	..	..	9
Oranges ..	..	..	..	4
Total ..				214

The results showed that 212 samples complied with the regulations.

Two samples of raisins were found to contain sulphur dioxide slightly in excess of the quantity allowed in the regulations, and the importers were advised accordingly.

(2) *Shellfish.*

There are no shellfish beds or layings within the jurisdiction of the Bristol Port Sanitary Authority.

(3) *Number of samples of food examined by :*

(a) *Bacteriologist.*

Two samples of raisins examined at the city laboratory during the year revealed the presence of maggots and small beetles on residuum on surface of extract and suggested contamination with dirty sea water, but there was no evidence of sewage.

(b) *Analyst.*

See report on Public Health (Preservatives, etc., in Food) Regulations, 1925.

MISCELLANY

Standing Committee on River Pollution

A resolution was agreed to by the technical officers representing the various authorities convened at Worcester on May 23rd, 1928, to examine the influence on the River Severn of the waters ebbing out of the River Avon at Avonmouth. The local survey, which really was part of a more extensive survey of the Severn watershed area, was carried out on the 5th September, 1928, by the government chemist with the assistant port medical officer of health and the chief port inspector of Bristol. The expenses of the tug were borne by the Bristol Port Sanitary Authority. The report with the conclusion of Standing Committee is not yet to hand.

Dangerous Drugs Act, 1920

(Circulars Nos. 357 and 1095)

The Port Sanitary Sub-Committee agreed to allow the assistant port medical officer to carry out any work in connection with these circulars. An occasion arose for the medical officer to utilise this authority when the Jugo Slav ship s.s. *Zvir* arrived at Avonmouth on June 26th, 1928.

Report of Canal Boat inspection for the year 1928

(by Mr. J. A. Robinson, Inspector of Canal Boats)

Report in accordance with the requirements of section 3 of the Canal Boats Act, 1884, as to the work done in carrying out the regulations during the year 1928, with a summary of the contraventions and defects found in the canal boats examined.

1. The duties have been discharged by the chief port sanitary inspector and an assistant inspector whose other duties consist in the inspection of ships.
2. The number of inspections made was 53, and these were confined to four boats which were used regularly. No women or children are carried on board boats in this district.
3. PARTICULARS OF INSPECTION.
 - (a) *Registration*—All boats have been registered at some time.
 - (b) *Notification of change of masters*—This authority is not a registration authority, consequently no notifications were received.
 - (c) *Certificates*—Certificates were produced when required.
 - (d) *Marking*—All boats inspected were properly marked.
 - (e) *Overcrowding*—None was discovered or reported.
 - (f) *Separation of sexes*—No infringement was found.
 - (g) *Cleanliness*—Cabins were kept fairly clean. Two notices were served and complied with.
 - (h) *Ventilation*—The regulation openings were available in all cases.

- (i) *Painting of cabin interiors*—Two notices were served and complied with.
- (j) *Provision of water casks*—No contravention of the regulations was found. Two and four gallon stone-ware jars are preferred in this district.
- (k) *Removal of bilge water*—Four notices were served and complied with.
- (l) *Notification of infectious disease*—No cases were found or reported.
- (m) *Refusal to admit*—None.
- (n) *Dilapidation, &c.*—No infringement was found.
4. No legal proceedings have been required.
 5. Two notices were served to paint cabins ; these were complied with and the boats were also re-numbered.
 6. Two notices were served to wash and cleanse--these were complied with.
 7. Four notices were served to remove bilge water, and were complied with.
 8. Any cases arising of an infectious nature would be dealt with and isolated by the Port Sanitary Committee.
 9. No detentions of boats was required.
 10. No register kept.

Medical Inspection of Aliens

Annual return by the medical inspector of aliens for year ended 31st December, 1928.

Total no. of aliens arriving at the port, including those in transit and transmigrants, but excluding alien seamen (1)		No. of temporary visitors, .e., aliens whose stay in this country will not exceed three months (2)			No. of aliens who intend to settle permanently or remain in this country for more than three months (3)		
Total number	No. subjected to medical inspection*	Total number	No. subjected to medical examination†	No. of certificates issued	Total number	No. subjected to medical examination†	No. of certificates issued
492	449	214	—	—	‡56	45	—

ALIENS IN TRANSIT (4)			TRANSMIGRANTS (5)	
Total number	No. subjected to medical examination †	No. of certificates issued	Total number	No. subjected to medical examination †
222	1	1	—	—

* The term "inspection" relates to the preliminary inspection of aliens as they pass before the medical inspector.

† The term "medical examination" relates to detailed medical inspection.

‡ Of these, 11 (8 residents returning, 3 diplomats) were exempt from examination.

Particulars relating to detailed medical examination of aliens.

- | | | |
|----|--|----|
| 6. | Aliens who were subjected to detailed medical examination and were not certified by medical inspector | 45 |
| 7. | Number of each of the following certificates issued by the medical inspector of aliens : | |
| | (a) Certificate than an alien is a lunatic, idiot, or mentally deficient | 1 |
| | (b) Certificate that, for medical reasons, it is undesirable that an alien should be permitted to land .. | — |
| | (c) Certificate that an alien is suffering from some disease, defect or deformity, which may interfere with his capacity to support himself or his dependents .. | — |
| | (d) Certificate than an alien is suffering from one of the acute infectious diseases | — |
| | (e) Certificate that for the purposes of an adequate medical examination, it is necessary for the alien to land in order that he may be examined ashore .. | — |

Transmigrants.

- | | | |
|----|--|---|
| 8. | Number of certificates of the cleansing of verminous transmigrants given by the medical inspector of aliens to the immigration officer | — |
| 9. | Number of medical certificates in respect of transmigrants suffering from trachoma, fevers, etc., given to the immigration officer | — |

Particulars relating to alien traffic.

- | | | |
|-----|--|----|
| 10. | Total number of passenger vessels carrying aliens which arrived during the year | 66 |
| | Number of passenger vessels dealt with by inspector of aliens | 61 |
| 11. | Total number of cargo vessels carrying alien passengers which arrived during the year | 27 |
| | Number of cargo vessels dealt with by inspector of aliens .. | 11 |
| 12. | Any other vessels in connection with which the medical inspector has had to take action in regard to aliens .. | — |

